FAQs for buying a Solar Electric System

Are you thinking about generating your own electricity? Here are some ***F***requently ***A***sked ***Q***uestions that can help you decide if investing in a solar electric system is right for you.

Q What is a solar electric or photovoltaic system?

Solar electric or photovoltaic (PV) systems use the sun's energy to make electricity. PV technology produces direct current electricity by collecting electrons freed by the interaction between sunlight and the semiconductor materials in a PV cell.

Q Why should I consider buying a PV system?

A PV system reduces or eliminates the amount of electricity you purchase from your utility or electric service provider. A PV system can save you money on your electricity bill and act as a hedge against future price increases. The electricity generated by your PV system is clean, renewable and reliable. You help your community by reducing the electricity demand and provide additional electricity for the grid when you generate more than you use during the day, when this demand is highest.

Q Do I have a good site for PV?

Your site must have clear, unobstructed access to the sun. Buildings, trees or other vegetation should not shade your site. South-facing roof exposure is best, but roofs facing east and west may be OK. If a rooftop is not available, your PV system can also be mounted on the ground.

Q What should the size of my PV system be?

You can match the size of your system to your electricity needs and budget. The average household in California uses about 6,500 kilowatt-hours (kWh) per year. If your usage is typical of the average household, a system in the 3 to 4 kilowatt (kW) range would be adequate to meet most of your electricity needs.

To estimate the best system size for your home or business, examine your electricity usage for the last 12 months and apply this easy formula.

Annual Usage		1 kW System Output*		System Capacity
6,500 kWh	÷	1,350 kWh	=	4.82 kW

A system with a capacity of one kW can produce about 1,350 kWh per year. Divide your annual electricity usage (in kWh per year) by 1,350 kWh to get the system size (in kilowatts) that would meet most of your electricity needs. If you want your PV system to meet half of your electricity needs, then size it to meet half of your annual electricity use. Or offset only a small portion of your electricity bill with a single PV panel. If your system is sized larger than your site's average electricity needs, (for example, to meet your highest electricity needs on summer afternoons) your system would generate more electricity than used during the rest of the year. When this occurs, you'll benefit from "**net metering**."

Q What is Net Metering?

Net Metering allows you to "bank" any surplus electricity your system generates on the electric grid. For example, excess electricity might be generated during the day when your system produces more electricity than you use. During this time, your meter would simply run backwards to record the amount of electricity your system has banked onto the grid. Later, you can use an equal amount of electricity without incurring a cost.

If more electricity from the grid is used than your system has banked, your utility will charge you annually for the difference. If your system produces more electricity than you need on an annual basis, your electric service provider may purchase it, but is not required to. Check with your utility for their policy to buy your excess electricity. For more information, visit "FAQ's on Net Metering" at [**www.energy.ca.gov/renewables/documents/education_documents.html#materials**].

Q How much mounting space do I need?

A small PV system requires as little as 50 square feet; however, a larger system that meets the needs of a typical household, would use between 300 to 600 square feet. As a rule of thumb, 100 square feet of PV area produces one kilowatt of electricity.

Q Are there any special features I should consider?

An inverter is needed to change the direct current (DC) power from the solar panels into alternating current (AC) electricity to power your electrical devices and to be compatible with the electric grid. Batteries can provide back-up power for your home or business in case of grid outages, but they also increase your costs.

Q How much does a PV system cost?

Although many factors affect the cost, an average PV system currently costs from $8 to $10 dollars a watt, including installation, or $16,000 to $20,000 for a 2 kW system before rebate.

* 1350 kWh per year is based on a 20 percent capacity factor. Capacity factor varies with location.

Q Are there any incentives or rebates available?

YES! The California Energy Commission's Emerging Renewables Program offers cash rebates on eligible PV systems. To find out what the current rebate level is, please contact the Energy Commission (see contact information below).

Q Am I eligible for a rebate?

If you live in the electricity service territory of Pacific Gas and Electric Company, Southern California Edison Company, San Diego Gas and Electric Company, or Bear Valley Electric and you are installing a system of less than 30kW, you are eligible for a rebate. You or your system retailer can apply for the rebate.

Q Are there any tax credits?

Yes, California offers the Solar and Wind Energy System Credit for taxable years beginning or after January 1, 2001, and before January 1, 2006. This can be used by taxpayers against their net tax in an amount equal to the lesser of 7.5 percent (15 percent before December 31, 2003) of the cost of purchasing and installing a solar or wind energy system after deducting the value of any rebate received. To be eligible for the tax rebate, your system must be certified by the California Energy Commission. For more information on the tax credit, visit [**www.consumerenergycenter.org/renewable/tax_credit.html**].

Q Are there any financing programs available?

The best way to finance a PV system for your home is through a mortgage loan that includes a primary mortgage, second mortgage or home equity loan secured by your property. If mortgage financing is not available, consider other sources such as conventional bank loans. A list of companies that finance PV systems can be found on the California Energy Commission's website at **[www.consumerenergycenter.org/erprebate/financing_intro.html]**.

Q How do I connect my PV system to the grid?

You must enter into an Interconnection Agreement with your utility to connect your system to the electric grid. This agreement addresses the terms and conditions under which your system will be safely connected to the grid and specifies the metering arrangements (called **Net Metering**).

Q How do I find a PV retailer?

The California Energy Commission and the California Solar Energy Industries Association provide lists of PV retailers. Retailers either can provide installation or can refer you to installation contractors in your area. Try to find a company located in the area where your system will be installed. Price is only one factor when selecting a PV company and/or contractor. Here are some other considerations when you select your retailer and installer:

- Does the company have experience installing grid-connected systems?
- How many years hsa the company been in the business of installing PV systems?
- Does the company use licensed California contractors?
- Does the company have any judgments or liens against it?
- Will the company provide references of previous customers?
- Always get more than one bid and make sure that the bids are for the same system.

Q How can I get more information?

Learn more about the Emerging Renewables Program rebate, the state tax credit, and other helpful information from:

California Energy Commission
Call Center: (800) 555-7794 or
(916) 654-4058 for callers outside California
E-mail: renewable@energy.state.ca.us
www.consumer**energy**center.org

For more information about solar energy, contact:

California Solar Energy Industries Association
Phone: (800) 225-7799
Website: www.calseia.org

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RENEWABLE ENERGY PROGRAM

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